Laser-Based Laminated Object Manufacturing

Laminated Object Manufacturing® Speeds Product Development and Cuts Prototyping Costs

Producing prototypes, models, or molds to create new products has always been a barrier for manufacturers. High-cost artisans painstakingly and slowly handcraft new prototypes with expensive metals. With assistance from the Department of Energy's Inventions and Innovation Program, Michael Feygin developed the Laminated Object Manufacturing® (LOM™) machine. The LOM machine works with computer design software to produce physical objects. Using high-quality paper, plastic, or a composite, the LOM machines can produce small, intricate, thin-wall models and masters; complex, thick-wall casting patterns; and solid cores, forming tools and cavity molds.

The system's software slices the geometry along the vertical axis into many layers. A rechargeable laser cuts cross-sectional layers in an outline of the material's top layer with crosshatched excess material. Once all layers have been laminated and cut, excess material is removed to expose the finished part.

Benefits

Energy Savings

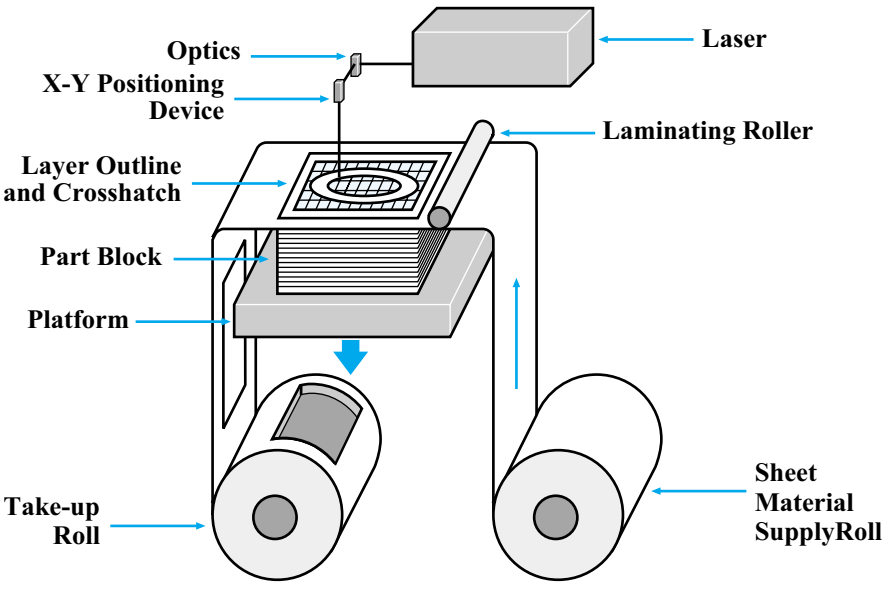
Direct energy savings accrue from reduced electrical demand to run the LOM, which uses a laser to cut paper versus a computer numerically controlled (CNC) machine that mills a metal model.

Waste Reduction

Eliminates scrap from machined metal prototypes necessitated by redesigns of preproduction models. Uses low-cost sheet paper instead of limited shelf life, high-cost photopolymer.

Productivity

Reduces unnecessary machining time and saves associated labor. LOM works in hours or days versus a CNC that takes days or weeks.



Laser-Based Laminated Object Manufacturing

Overview

- Commercialized in 1991 by Helisys Inc. (formerly Hydronetics)
- Over 170 installations worldwide

Applications

- Designing and manufacturing industrial and consumer products
- Patterns and molds for the foundry and investment casting industries
- Manufacturing heavy equipment for mining and agricultural industries

Capabilities

- Has large part envelope that can accommodate multiple smaller parts.
- Fabricates models from low-cost paper instead of photopolymer or metal.
- Reduces fabrication time from weeks to days.
- Can operate unattended overnight.
- Reduces expensive machine shop labor.
- Allows complete flexibility in prototype redesign and perfectly cuts intricate internal geometry the first time.

Contact: Cubic Technologies, Inc - **Michael Feygin** - (310) 965-0129